Table 1: The DB9 connector pin out on the breakout box for 64x4 Pickering Switch to Keithley 2602. The pins on the back of the Keithley 2602 for Channel A (and B) are not numbered, but labeled, for consistency the table lists the pins numbered from left to right. In the case were more than one Switch Pin is listed for a function/DB9 pin the multiple switch pins were soldered together and wired as one channel to the DB9 connector inside the breakout box. For any unused pins and or channels, the ends were covered in heat shrink to protect them for future use and minimize introduction of noise. The grounding wire from the switch cable (Black and White striped wire) was terminated with a fork and screwed to the wall of the breakout box. Thus all boxes, cables, and connectors were tied to a single ground for shielding and minimization of noise.

DB9 Cable	**Switch Function**	**Switch Pin**	**Keithley Function**	**Keithley Pin (Channel A)**
1	Y1	76, 77, 78	Low Source	Lo (Pin 1)
2	Y2	56, 57, 58, 59	Low Sense	Lo S (Pin 2)
3	Y3	37, 38, 39	High Source	Hi (Pin 4)
4	Y4	17, 18, 19	High Sense	Hi S (Pin 8)
5	GND	20	Ground	G (Pin 6)
6	N/C	N/A	N/C	N/C
7	N/C	N/A	N/C	N/C
8	N/C	N/A	N/C	N/C
9	N/C	N/A	N/C	N/C
Shielding	Shielding	Black and White Wire	Shielding	Chassis Ground (Green banana plug)

A 62 pin D-sub connector was used for termination of the leads from the Impactor Sample Chamber and Zero-Insertion Force (ZIF) socket. A 62 pin D-sub was the only connector that would fit onto the sample chamber and provide the maximum number of pins. However, there are 64 pins on the ZIF and related PGA chip carrier. Thus, Pins 63 and 64 on the PGA were tied together and wired to the chassis ground common to all the electronics. If noise is a problem, these two wires should be disconnected. Future customers and users should be made aware ahead of time that 63 and 64 are essentially Not Connected (N/C). The 64 pins of the switch were wired to a 62-pin D-sub connector inside the breakout box such that X1-62 match pins 1-62 on the 62-pin D-sub connector and ultimately pins 1-62 on the PGA. The X63 and X64 channels were left not connected and covered with heat shrink inside the break out box. NOTE: The 78 pin D-sub connector on the switch does not correlate pins 1-64 with X1-64 (where X is a channel that can be connected to Y1-4). Please see the switch documentation for pin outs and pay close attention to the channel and pin labels.